

SONY®

VIDEO CAMERA AVC-3200

OWNER'S INSTRUCTION MANUAL



READ THIS INSTRUCTION MANUAL BEFORE OPERATING THE CAMERA

SONY Video Camera Model AVC-3200 is a compact video camera suitable for operation with closed-circuit television systems and video recorders. The camera has many features found in professional television cameras.

Easy to operate

Operation consists of simple "point-and-shoot" procedures. The Automatic Sensitivity Control System regulates camera sensitivity to suit a wide range of lighting conditions (indoors-30 footcandles, to bright outdoors-10,000 footcandles).

Clear, sharp pictures

Crisp high-resolution pictures are assured by the special frequency compensation (video processing) system. The solid-state circuits, using SONY FETs, are designed for rugged continuous use. The camera will provide remarkably stable performance and long operating life if the few simple rules given at "IMPORTANT POINTS TO REMEMBER" to protect the vidicon are followed.

Excellent versatility

The camera provides three forms of output. For recording, use the VTR Connector. For direct monitoring, such as surveillance, exhibits, communications, etc., using conventional closed-circuit monitors or TV sets, the VIDEO/RF Output is suitable. In addition, these camera outputs can be synchronized from an external sync source or the internal sync source. The choice depends upon the application and the equipment with which the camera is used, as will be explained later.

Viewfinder

A companion Electronic Viewfinder, Model AVF-3200 (optional), can be mounted on top of the camera to show the actual TV picture that the camera produces. This accessory makes the camera as easy to aim and focus as professional studio cameras.

NOTE

The Video Camera Model AVC-3200DX, the Video Camera Kit Model AVC-3200K and the Video Camera Model AVC-3200 are identical in operating procedure and characteristics. They differ in the accessories that are supplied.

Model AVC-3200 includes:

Lens f/1.8 16 mm, Camera Cable CCF-5 (15 ft), Coaxial cable equipped with UHF-type connectors, Polishing Cloth.

Video Camera Kit, Model AVC-3200K includes:

Lens f/1.8 16 mm, Camera cable CCF-5 (15 ft), Microphone, Microphone stand, Microphone lavaliere, Microphone extension cord (15 ft), Elevator tripod, Carrying case, Polishing cloth.

The Video Camera Model AVC-3200DX includes:

SONY Electronic Viewfinder; Model AVF-3200, Zoom lens, Camera cable CCF-5 (15 ft), Microphone, Microphone stand, Microphone lavaliere, Microphone extension cord (15 ft), Elevator tripod, Carrying case, Polishing cloth.

- This instructions are given according to the Video Camera AVC-3200DX



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IMPORTANT POINTS TO REMEMBER

The vital part of a video camera is the vidicon tube that converts the optical image into electrical signals. To ensure top performance and long operating life of the vidicon, follow these precautions.

● **NEVER POINT THE CAMERA DIRECTLY AT THE SUN** or other source of bright light. Avoid continuous shooting at a subject in strong light, especially when the picture has high contrast. If the camera is used for a long time in this way, the sensitivity of the vidicon tube will decrease. When aiming the camera at a bright subject, pan the camera from side to side occasionally, so that the image on the vidicon does not remain fixed.

● **AVOID UNNECESSARY EXPOSURE TO LIGHT.** Keep the lens cap in place or set the Power Switch to **STANDBY** or to **OFF** when the camera is not being used.

● **AVOID ROUGH HANDLING OR MECHANICAL SHOCK** to the camera, especially when the lens faces downward.

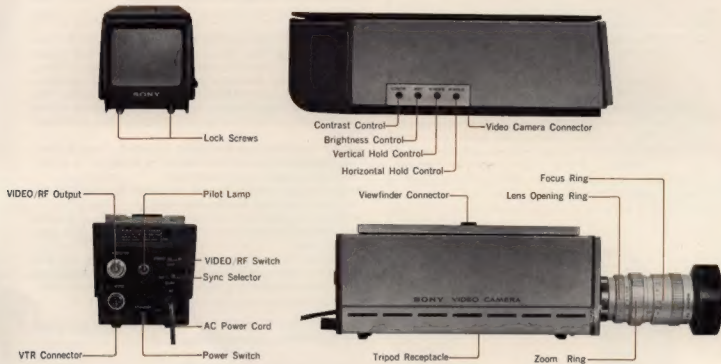
● When the camera is not in use for a long period of time, be sure to turn off the power and keep the camera in a horizontal plane.

● If vidicon replacement is indicated, or if there are any questions about performance, contact a SONY Authorized VTR Service Station or a SONY VTR Factory Service Center.

The operating temperature range is 32°F to 104°F.

Do not discard the carton. It provides optimum protection when the camera is transported

LOCATION OF PARTS AND CONTROLS



Viewfinder Connector

accepts SONY Viewfinder Model AVF-3200.

Lens Opening Ring

adjusts lens opening.

Zoom Ring

To obtain a wide angle or telephoto picture.

Focus Ring

sets distance from lens to subject (optical focus).

Tripod Receptacle

accepts a standard tripod fitting.

Pilot Lamp

lights when the camera is on.

Power Switch

ONturns on the camera.

STANDBY ...readies the camera for operation. In this position the camera is on while the built-in vidicon shutter remains closed to protect the vidicon tube from unnecessary exposure to light.

OFFturns off the camera.

AC Power Cord

connects to an ac power supply (117 volts, 60 Hz).

VTR Connector

connects to a SONY Videocorder for recording camera pictures. Other equipment having their own sync sources may be connected to this connector.

VIDEO/RF Output

connects to a monitor or a TV receiver for displaying camera pictures directly. The output signal is determined by the VIDEO/RF Switch.

This connector can also be used to connect a video tape recorder which does not have its own internal sync source. For connections, refer to page 6.

VIDEO/RF Switch

For direct monitoring, select the output-signal characteristics at the VIDEO/RF Output with this switch.

VIDEOif the monitor has a UHF video-input connector, use this position (line monitoring).

RFwhen connecting a SONY CVM-Series monitor or a TV receiver, such as your existing TV set, use this position (rf monitoring). Connections are then made to the antenna terminals of the receiver.

This switch has no effect on the signal available at the VTR Connector.

SYNC Selector

selects the sync source to be used.

EXTto operate with a SONY Videocorder or equipment having its own internal sync source (connection should be made at the VTR connector), use this position. The camera outputs at the VIDEO/RF Output are locked to the external drive signals supplied from the Videocorder (or other equipment connected).

INT.....to make direct-monitoring connections (without connecting a Videocorder) or to operate a video tape recorder which has no internal sync source, use this position. The camera output is locked to the internal drive signals (random interlace, vertical line-locked to 60 Hz).

TRIPOD AND VIEWFINDER ATTACHMENT



Tripod

The SONY elevator tripod VCT-20A (supplied) or a standard tripod can be attached to the Tripod Receptacle at the bottom of the camera.

1. Extend the legs of the tripod to the desired length. The tripod legs can be lengthened or shortened by turning the knurled locking sleeves (1) counterclockwise to loosen and clockwise to tighten.
2. Keep the pan handle (2) of the tripod turned to the back of the camera, and place the camera on the tripod head so that receptacle of the camera fits the screw of the tripod. Tighten the smaller (lower, 3) screw knob firmly, then tighten the larger (upper, 4) screw to lock the camera securely.
3. Pan handle (2) is used for tilting the camera up or down and for turning (panning) right or left.
To tilt, release the grip of the pan handle then move the handle up or down. To move right or left, release the locking lever (5) and move the pan handle.
4. To elevate the camera, unlock the locking lever (6) and turn the elevator handle (7). Lock the camera at the desired height by tightening the locking lever (6).

Viewfinder

The SONY Electronic Viewfinder Model AVF-3200 assures accurate framing, precise focusing and parallax-free aiming even when you are not in position to see a video monitor.

The Viewfinder can be mounted on top of the camera. Connections are made at the Viewfinder Connector.



CAMERA ADJUSTMENTS

The instructions given here are for operation with the Viewfinder. To make camera adjustments without the Viewfinder, set up the video system before turning on the camera and use the regular monitor.

For connections refer to page 6.

1. Mount the Viewfinder on top of the camera.
2. Connect the AC Power Cord of the camera to an ac outlet.
3. Set the Power Switch to STANDBY. The Pilot Lamp will light indicating that the camera is operating.
4. Allow the camera to warm up for 30 seconds, then set the Power Switch to ON.

When operating without the Viewfinder, check the setup of the video system and set the SYNC selector and/or the VIDEO/RF Switch to the proper positions. Refer to page 3.

5. Remove the Lens Cap and point the camera at the subject.
6. Set the Lens Opening Ring to $f/2$. While watching the Viewfinder (monitor) screen, adjust the Focus Ring to produce a clear, sharp picture. For better picture quality adjust the Lens Opening Ring. Refer to the following notes.

Notes regarding the Lens Opening Ring

The Automatic Sensitivity Control System of this Video Camera permits operation over a wide range of lighting conditions, from indoor lighting (30 footcandles) to outdoor daylight (10,000 footcandles).

In most cases the lens should be wide open ($f/2$). However, by setting the optimum lens opening to suit lighting conditions, best picture quality will be assured.

A simple guide for lens opening is as follows.

For indoor shots; (normal artificial illumination) set the Lens Opening Ring to $f/2$.

For outdoor shots; (cloudy or shade) set to 4-5.6
(bright scenes) set to 8-11

Further precise adjustments should be performed by watching the viewfinder screen. The use of a smaller lens opening (higher f number) is also helpful in prolonging the life of the vidicon tube.

Viewfinder screen adjustments

Controls on the Viewfinder, such as brightness, contrast, and vertical and horizontal hold, determine picture characteristics on the Viewfinder only. However, incorrect setting of the Horizontal hold control may affect the camera output.

CONNECTIONS AND OPERATION

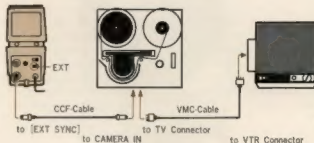
1. CAMERA RECORDING

Using a SONY Videocorder

Connections

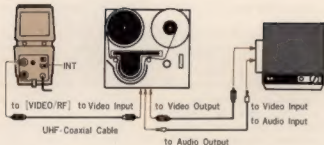
1. If the Videocorder is equipped with a 6-pin camera input receptacle,

- Connect the CCF-Series camera cable (supplied) to the VTR Connector on the camera.
- Set the SYNC Selector to EXT.
- Set the VIDEO/RF Switch to VIDEO.



If the Videocorder is equipped with a UHF-type (SO-239) camera input receptacle,

- Connect an AXC-Series cable to the VIDEO/RF Output on the camera.
- Set the SYNC Selector to INT.
- Set the VIDEO/RF Switch to VIDEO.

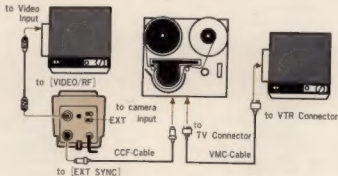


2. Connect both the camera and the Videocorder to ac outlets and turn on the equipment.
3. Make audio connections to the Videocorder. A high-quality microphone (low impedance) is included with the camera kit.



4. Connect a monitor to the Videocorder and to an ac source.
5. Proceed with the recording as described in the Videocorder instruction manual.

- An additional monitor may be connected to the VIDEO/RF Output on the camera. In this case the SYNC selector should be set to EXT so that the camera outputs are locked to the external sync signal supplied by the VTR. When operating without the Viewfinder, this connection will be helpful for direct monitoring of the camera output.



2. DIRECT DISPLAY OF CAMERA PICTURES

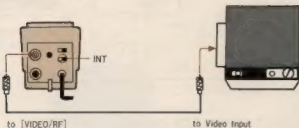
For conventional closed-circuit applications, such as surveillance of remote locations, use the direct-display facility of the camera by connecting the VIDEO/RF Output to a monitor or a conventional TV set.

When using a video monitor which has a UHF-type connector for video signal input, refer to next "Line Monitoring".

When using a video monitor or a conventional television set for picture display, skip the next paragraph and refer to "RF monitoring".

Line monitoring

1. Connect the VIDEO/RF Output of the camera to the video input connector of the monitor. Use coaxial cable equipped with UHF-type plugs.
2. Plug the camera and the monitor into ac outlets.
3. When the camera is used without the SONY Videocorder, set the SYNC Selector to INT; the camera output at the VIDEO/RF Output is then locked to 60 cycle (Hz) line frequency (vertical line lock).
4. Set the VIDEO/RF Switch to VIDEO.
5. Turn on the camera and point it at the subject. Adjust lens settings. Refer to "CAMERA ADJUSTMENTS" on page 5.



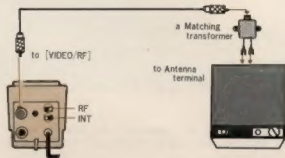
RF monitoring

1. Connect the VIDEO/RF Output receptacle on the camera to the antenna terminals of a monitor/TV set. Use a coaxial cable equipped with a UHF-type plug. The other end of the cable must be compatible with the antenna input requirements of the monitor/TV set. To match the coaxial-cable (75 Ω) to the screw-type antenna terminals (300 Ω) on the back of the

monitor/TV set, a 75-to-300 ohm matching transformer must be used.

2. Plug the camera and the monitor into ac outlets.
3. When operating the camera without the Videocorder, set the SYNC Selector to INT. When operating with the Videocorder, set the selector to EXT.
4. Set the VIDEO/RF Switch to RF. The output signal of the camera is converted to an ordinary TV (rf) signal. The rf output is preset to Channel 3.
5. Turn on the camera and point it at the subject. Adjust lens settings. Refer to "CAMERA ADJUSTMENTS" on page 5.
6. Turn on the monitor/TV and set the channel selector to Channel 3. While watching the monitor screen, adjust the VHF fine tuning knob on the monitor until a clear, sharp picture appears on the screen. Picture adjustments on the monitor are the same as in normal TV viewing.

If "Channel 3" is active in your area and interference is evident, see your SONY Authorized VTR Service Station or SONY VTR Factory Service Center to have the rf output reset to another channel.

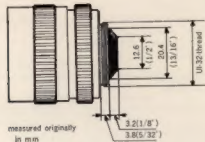


INTERCHANGEABLE LENSES

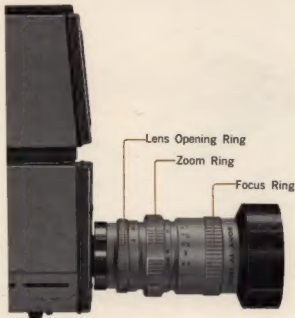
The Wide-angle lens and Telephoto lens are available as optional accessories. These interchangeable lenses add greater flexibility and more dramatic results.

The lens mount is a standard "C" mount. Any "C" mount 16 mm movie-camera lens which has a distance of less than $\frac{3}{8}$ " (8 mm) between the rear of the lens and the mounting flange can be attached to this camera.

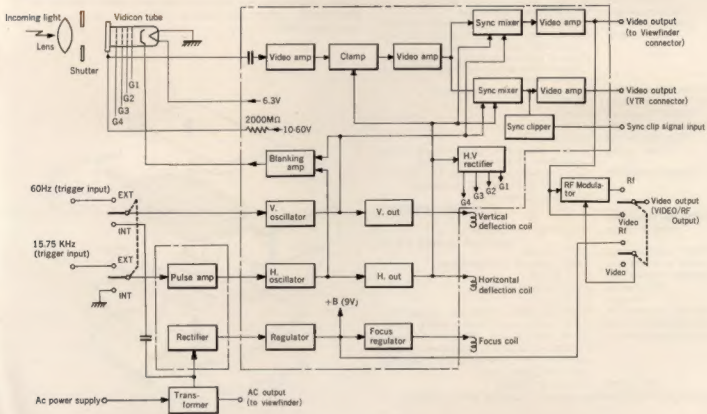
● When replacing the lens, insert the selected lens and thread it into place by turning it clockwise.



The zoom lens (Model VCL-16B) offers professional results in your productions. It moves the image closer or further away as you desire. Set your stage for a wide-angle shot, then close up on the point of interest. The lens travels its full range from 16 mm to 64 mm telephoto with smooth manual action.



BLOCK DIAGRAM



SPECIFICATIONS

- Vidicon tube: 2/3-inch, separate-mesh vidicon
Semiconductors: 29 transistors, 22 diodes
Scanning system: 525 lines per frame, 30 frame per sec
Sync system: Internal sync—vertical line-lock (60 Hz)
sync with random interlace
External sync—EIA standard, 2:1 inter-
lace or sine wave sync (from CV-Series
Videocorder).
Horizontal resolution: More than 400 lines at center
Horizontal frequency: 15.75 kHz
Vertical frequency: 60 Hz
Signal-to-noise ratio: 42 dB
Video bandwidth: 6 MHz
Video output: 1 Vp-p composite video signal, sync
negative, 75-ohms, unbalanced
Output connector: VTR Connector (6-pin male connector)
VIDEO/RF Output (UHF connector)
Viewfinder Connector
(9-pin male connector)
Automatic sensitivity
control range: 30–10,000 footcandles
(with lens opening f/1.8)
Power requirements: 117 V, 60 Hz
Power consumption: 10 VA (without the Viewfinder)
Ambient temperature: 32°F–104°F
Dimensions: $4\frac{3}{8}(h) \times 4\frac{3}{8}(w) \times 13\frac{1}{4}(l)$
Weight: 6 lb 8 oz
Supplied accessories: SONY Electronic Viewfinder, Model AVF-
(AVC-3200DX includes 3200, Zoom lens, Camera cable CCF-5
following accessories) (15 ft), Microphone, Microphone stand,
Microphone lavalliere, Microphone extension
cord (15 ft), Elevator tripod, Carrying
case, Polishing cloth.
Hz (hertz): Cycles per second
Design and specifications subject to change without notice.

PACKING INSTRUCTIONS

When transporting or shipping the camera, repack the unit in the original carton and packing material as shown in the illustration below.

